



CITY OF PROVIDENCE

City of Providence Design and Resiliency Team (DART) Grant Application

1. Project Summary

Project Title

SustainPVD Plan Update

Name of Community

Providence, Rhode Island

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Project Abstract

Providence is experiencing an exciting time for sustainable and resilient development. The City's population is growing, the downtown waterfront is increasingly vibrant, and following a highway relocation project, there are almost 20 acres of new developable parcels situated between the Downtown, Providence River, and Brown University. Providence recently committed to creating a climate mitigation and adaptation plan within three years as part of the Compact of Mayors. The City's *Sustainable Providence* plan, released in 2014, provides a foundation for this work, but it does not include a formal assessment of greenhouse gas emissions or climate impacts. The City does however, have a sufficient understanding of its climate hazards and vulnerabilities through various state, City, and university reports and plans, including the City's comprehensive plan, multi-hazard mitigation plan, harbor management plan and urban forestry plan; a regional stormwater utility study, a resilient port study, and a variety of other community- and university-led reports. The DART will be critical in compiling these citywide efforts and turning them into an actionable community-wide plan.

Objective of the DART process

DART's objective is to compile citywide planning and research efforts to complete a climate hazard and vulnerability assessment for Providence. This will establish a framework for an adaptation plan to be included in the update of the city's sustainability plan to be released in the spring of 2016.

2. Community Description (approximately 2 pages)

[A. Brief history; B. Population, demographics and economic information; C. Form of local government; Geography; D. Important project or contextual information; E. Regional setting and influences; F. Brief summaries of relevant planning efforts and reports]

The City of Providence, founded in 1636, is the state capital of Rhode Island and, with a population of 178,042, it is the third most populous city in New England after Boston and Worcester. Providence is located at the head of Narragansett Bay with the Providence River, formed by the confluence of the Moshassuck and Woonasquatucket rivers, running through the center of the city. The City has a Mayor and City Council with 15 members.

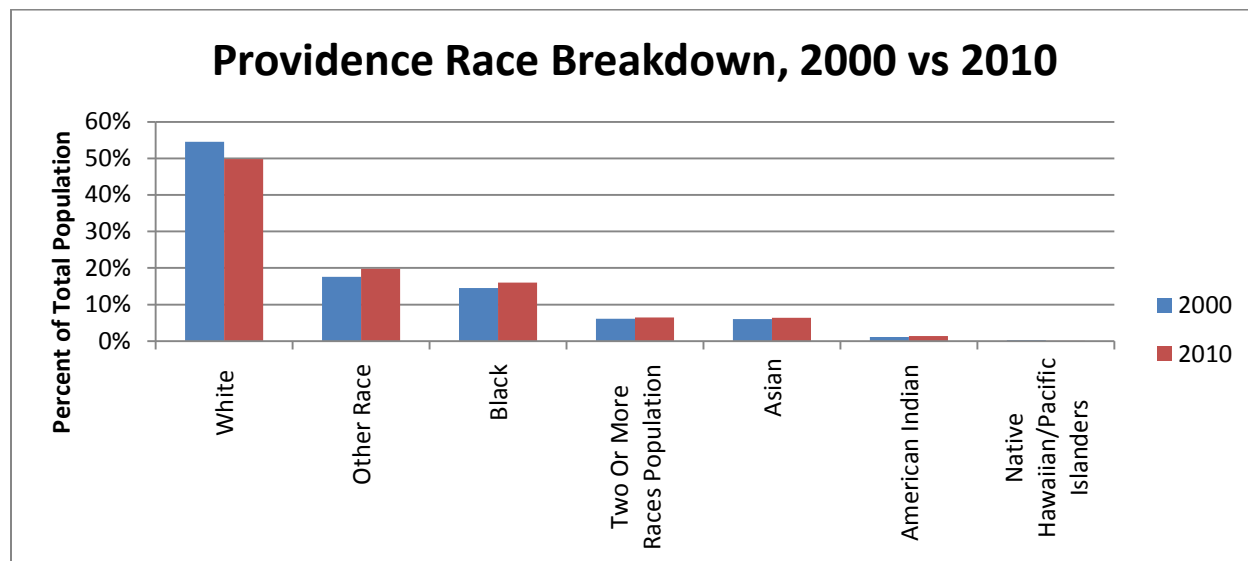
Prior to colonization in the early 1600s, Providence was home to the Narragansett tribe. In 1636 Chief Canonicus gave Roger Williams, an exile from the Massachusetts Bay Colony, a large tract of land which became the Providence Plantation and was later incorporated as a city in 1832.

Providence was one of the first cities in the country to industrialize and it became noted for its jewelry and silverware industry. By the early 20th century, Providence was home to some of the largest manufacturing plants in the country. However, triggered by a series of economic, social, and natural events, the city entered a state of decline by mid-century. Providence first suffered, like many cities in the northeast, from the loss of manufacturing. However, the jewelry industry continued to thrive and attracted many new immigrants to the city. The Great Depression, and then the hurricanes of 1938 and 1954, hit the city hard. Population peaked in the 1940s and the city experienced a dramatic decline after 1950. Urban renewal schemes and the construction of Routes 6 and 10 and interstates 95 and 195 in the 1950s and 1960s destroyed a significant part of the city's urban fabric and isolated neighborhoods from each other and from downtown.

Population declined until 1980, when it hit an all-time low of 156,804 people. Since then, the city has enjoyed a much touted and celebrated renaissance. By the 1990s, the city emerged with a revitalized downtown waterfront and a robust arts and culture scene. Today the City of Providence is dubbed "The Creative Capital," and is characterized by a number of outstanding features including its open spaces such as the 427-acre Roger Williams Park and historic Blackstone Boulevard; its unique scale in terms of buildings and population; the many respected private and public learning and health institutions; its history and architecture; its ethnically and culturally diverse population; and its proximity to a variety of economic, recreational and cultural attractions, including the cities of Boston and New York, the ocean, and the mountains in northern New England.

Despite this rebirth, Providence continues to face socio-economic challenges including financial constraints, aging infrastructure, shifting demographics, and poverty. In addition to the waning federal and state funding that all communities are encountering, Providence is home to a large number of non-

taxable public entities, resulting in disproportionately high taxes for Providence residents and businesses. Providence is also now a minority majority city, with just under 50 percent of the population identifying as white in the 2010 census. Since 2000, the median income for Providence families has increased 20 percent, reversing a decline from 1990 to 2000. However, 29 percent of the city's population continues to live below poverty level.



The City is responding to and overcoming many of these challenges. Providence stands to benefit from the goals and policies in the Rhode Island state land use plan, Land Use 2025, which calls for the concentration of growth in existing urban centers, maximizing state investment in areas with existing infrastructure, and promoting efficient development through infill, redevelopment, and higher densities. In addition, with the relocation of Interstate 195, the Downcity District and the Jewelry District are re-connected to one another through a restored downtown street grid. This also creates a rare opportunity for planned growth and development along the now vacant parcels where the highway used to be in the center of Downtown and along the adjacent waterfront area.

The City is seizing upon these opportunities for growth and redevelopment to embed sustainability and resilience into the fabric of the city. Sustainability efforts have been a part of City government since 2006 with the creation of the Clean Energy Task Force, which later evolved into the Environmental Sustainability Task Force when the Office of Sustainability was created in 2011. As a result, sustainability has been included in a number of citywide plans, including the 2013 multi-hazard mitigation plan, which has a section dedicated to the impacts of climate change. In early 2014, the City adopted *Providence Tomorrow*, the city's comprehensive plan which includes a chapter on sustainability and the environment. Later that year, the City completed its first sustainability plan, *Sustainable Providence*, and passed a new zoning code that won a smart growth award. The City is also in the midst of updating its Urban Forest Master Plan, Harbor Management Plan, and is leading efforts to study the creation of a regional stormwater utility district. All of these efforts play an important role in both mitigating and adapting to climate change.

Coordination with state planning efforts has contributed greatly to the City's understanding of climate impacts and vulnerabilities. The City works closely with many state agencies including the Department of Environmental Management (DEM), the Department of Health, the Office of Energy Resources (OER), and the Coastal Resources Management Council (CRMC). The City plays an active role with a seat on the state's Executive Climate Change Coordinating Council's (EC4) advisory board. Furthermore, the CRMC's hurricane and sea-level rise impact analysis has been incorporated into the City's Hazard Mitigation and Comprehensive Plan. Lastly, the City acknowledges the impact of climate change on health and in 2012, with the support from the Rhode Island Department of Health, the city completed a climate and health impact assessment.

In the past year, under Mayor Jorge O. Elorza's new leadership, the City has taken an even more proactive approach towards addressing climate change. In July, Mayor Elorza divested city funds from the 15 most egregious carbon polluting coal companies. He also called for the City to set a greenhouse gas reduction target that is on par with or more aggressive than the state's goal of an 85 percent reduction by 2050, and he signed the Compact of Mayors, committing Providence to both climate mitigation and adaptation action and publicly reporting progress through the Carbon Disclosure Project. The Design and Resilience Team will help the City of Providence execute this commitment by supporting the completion of a vulnerability assessment and helping the City create a framework of action to address these vulnerabilities.

3. Problem Statement and Issues Analysis (approximately 3-4 pages)

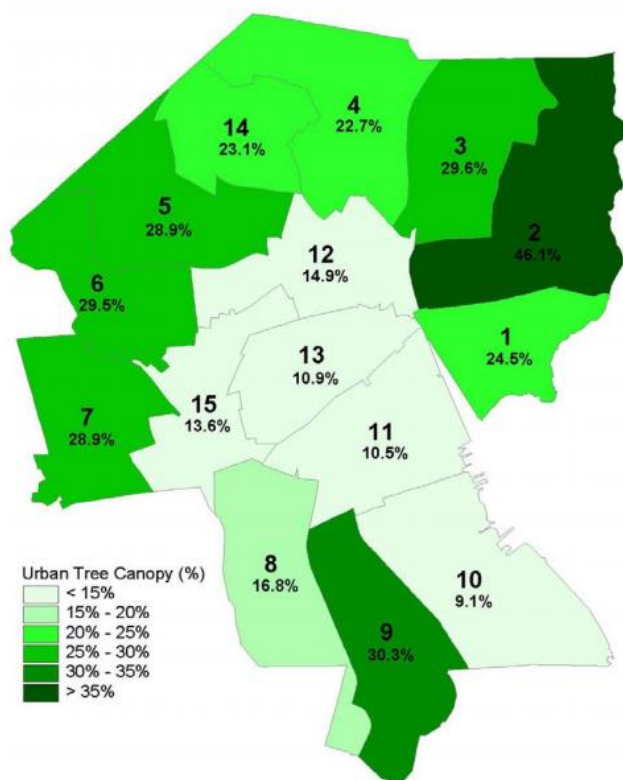
[A. Define and describe the proposed study area (e.g., the entire municipality, a portion of the community) B. Identify existing barriers (physical, social, economic, political) that limit the community's ability to address its concerns or agree on solutions. C. Brief assessment of your community's most significant resiliency needs (e.g., climate adaption, stable natural hazards, and public health issues). Describe any past attempts that have failed to resolve community issues. Include graphic materials as needed. D. Identify strategic areas which the DART should focus on and why those areas are critical to the community. Describe how the issues relate to development concerns at the regional, municipal, and neighborhood scales. Issues can include any aspect of resiliency, as broadly defined (e.g., climate adaptation, hazard mitigation, public and environmental health, social inequities, and unstable urban centers).]

With support from the DART, the City of Providence plans to compile the planning and research efforts throughout the city to complete a citywide climate hazard and vulnerability assessment and establish a framework for creating an adaptation plan. As part of the Compact of Mayors, Providence has committed to creating a climate adaptation plan within three years. Despite not having completed a formal assessment, the City has an extensive understanding of its climate hazards and vulnerabilities through various state, City, and university reports. The DART will be critical in building upon these efforts and turning them into a citywide actionable plan.

The city's most significant hazards are coastal and riverine flooding, tree debris and housing damage from hurricane winds, and extreme heat days that have adverse impacts upon poor, young, and elderly residents. Providence has responded to a number of significant major disasters in the last four years. In

March 2010 Providence twice experienced record-breaking river and street flooding. In August 2011 the city was heavily impacted by Tropical Storm Irene with tree debris damaging electric lines and homes. In October 2012, Providence felt the impacts of Hurricane Sandy. During the winter of 2013, Providence received a Presidential Disaster Declaration for the February Blizzard known as Nemo, and this past winter, the city again suffered significant damages from the record-breaking snowfall of 2015.

These hazards are already being exacerbated by a changing climate, and furthermore by the city's socioeconomic, environmental, and infrastructure challenges. The 2012 report, *Building Resilience to the Public Health Impacts of Climate Change in Providence*, examined the projected effects of climate change and their impacts on public health and vulnerable populations. It created a composite map based on a number of socio-economic and geographic factors that identifies neighborhoods with the highest vulnerability to climate change. Of the population in the 100- and 500-year flood zones, 56 percent are of low- to moderate-income. Brownfields and environmentally contaminated properties in Providence are predominantly located in the poorer neighborhoods of the city, and open space is more prevalent in the wealthier, East Side neighborhood. A 2007 tree canopy study shows that the East Side also has the highest percentage of tree canopy coverage, while the South Side, a predominantly low-income and minority neighborhood has the lowest canopy coverage and some of the highest asthma rates in the state, particularly for youth.



Families living with everyday survival issues are hard pressed to handle extreme hazards and shocks. The City's Olneyville neighborhood of Providence characterizes many of these existing inequalities and has been hit hard by extreme floods during the historic floods of March 2010. In 2010, there were neighborhood evacuations from several streets as flood waters rose and a bridge connecting the neighborhood to the Eagle Square Marketplace was heavily damaged, impacting traffic patterns and pedestrian access to the neighborhood's only grocery store. Nearly half of the Olneyville section of Providence is in the existing regulatory 100-year floodplain as well as the mapped Hurricane Surge area from a Category 3 or 4 Hurricane. Many of the residents in Olneyville are renters and do not have

insurance coverage for their belongings. In addition, many of the landlords do not have flood insurance coverage on existing three story tenements.

The City of Providence's waterfront has long been a driver of economic development, and Mayor Elorza has prioritized this continued land use with a new emphasis on sustainability and resilience. The University of Rhode Island (URI), with funding from the RI Department of Transportation and the URI Transportation Center, is leading a pilot project to assess stakeholder perceptions of climate vulnerabilities at the Port of Providence. As part of this study, a vulnerability assessment of the Port has been completed. DART would build off this work to inform both the City's and ProvPort's planning and policy decisions.

Another factor that is intensifying the city's vulnerability is its aging infrastructure. After years of inadequate funding, our roads, bridges, water/sewage distribution systems and dams are quietly failing. Localized flooding is exacerbated by the tendency to pave-over permeable surfaces. This decay is already impacting our water quality and economy, with beach and shellfish bed closures and toxic algae blooms having become a regular occurrence. The City of Providence, along with many of the surrounding municipalities, is under pressure from the RI Department of Environmental Management to invest in stormwater management infrastructure and take other measures to avoid contaminated runoff from entering waterways.

As a result, in 2013 Providence was one of six municipalities at the head of the Narragansett Bay that began exploring regional solutions to a wide range of shared challenges including flooding, stormwater pollution, and degraded drainage infrastructure. All six municipalities lack adequate resources to routinely maintain drainage infrastructure and to make needed infrastructure improvements to address stormwater problems and to fully comply with stormwater permit requirements. With funding from RI DEM and under the leadership of the City of Providence, the municipalities came together to explore the creation of a regional stormwater utility as a coordinated approach to provide a long-term, sustainable solution to stormwater management. The Phase I Study, completed in 2014, provided a planning level assessment of the feasibility of a regional stormwater utility district. The six communities and the RI Department of Transportation (RIDOT) have now entered Phase II, which will define the utility's scope and governance and provide detailed guidance on the steps to implement a regional stormwater management district. At the conclusion of Phase II, municipalities will determine whether to proceed to Phase III, which would establish the management district.

A stormwater utility would significantly enhance the City's resilience to climate change as rainfall becomes more frequent and extreme. One climate resilience asset the City already has is the Fox Point Hurricane Barrier, located at the base of the Providence River, protecting downtown but leaving large swaths of land to its south, including the port, vulnerable to storm surge. The Hurricane Barrier is a 3,000-foot tidal flood barrier constructed between 1960 and 1966. The construction of the barrier was largely in response to two massive hurricanes: the hurricane of 1938, which caused approximately \$120 million in damage to the city alone and killed 250 people, and Hurricane Carol in 1954, which brought a storm surge of nearly eight feet to many parts of the city. Since construction, it is estimated that the barrier has avoided several hundred million dollars' worth of damage. A \$3 million overhaul of the barrier's pumps was completed in 2006. However it is unclear how the barrier would perform in the future with sea-level rise and more intense storms.

4. Logistical Requirements: Describe how you will meet the logistical requirements below. There is no cost to the community for the Team's expenses but the community must provide:

A. An aggressive community outreach prior to the DART.

The Mayor's Office of Communications, the Department of Planning and Development, Providence Emergency Management (PEMA), the Healthy Communities Office, and Community Relations are among some of the departments that are able to assist with community outreach prior to the DART. PEMA, for example, has approximately 200 volunteers as part of their Community Emergency Response Teams (CERTs). The Mayor also recently launched SustainPVD, a community-wide initiative to help encourage Providence residents and businesses to take action to help the city achieve its sustainability goals. SustainPVD, which is part of the Office of Sustainability, is rapidly growing its communications and community engagement channels via social media, newsletters, and its new Ambassador program. Ambassadors are trained to work in the community to do outreach and tackle complex problems with the community.

The Office of Sustainability will also use the extensive partnerships and coalitions demonstrated in this proposal to ensure robust participation at the workshops and stakeholder focus groups. If selected, the City will convene a steering committee to work closely with the DART leading up to and following the workshops. This committee would include representatives from the following organizations and sectors:

- Providence Emergency Management Agency
- Providence Planning and Development
- University partners including Rhode Island School of Design, Brown University, University of Rhode Island and others.
- Designers, architects, and developers
- Clean Water Action and other environmental organizations
- Port of Providence
- Providence Water Supply Board
- Lifespan and other major health care institutions
- RI Department of Environmental Management and other key state agencies
- Environmental Justice League of RI and other community-based organizations
- Providence's Environmental Sustainability Task Force

By engaging this group early on, they would play a key role in gathering information and data leading up to the DART's arrival. They will also have a high sense of ownership to assist with implementation and additional follow up following the DART. This group will also help with driving attendance at the workshops, and engaging other stakeholders before, during, and after the DART.

Lastly, the City is beginning the process of updating Sustainable Providence, which will include public meetings and other means of community engagement throughout the fall and winter of 2015/16. It is the City's hope that with the support of DART, climate adaptation can be a new component of this plan, which is scheduled to be released in the spring of 2016.

B. Appropriate venues for DART's two evening public workshops and afternoon concurrent focus groups.

The City has a variety of options for meeting space for the two evening public workshops. We have held various meetings of this nature in City Hall, neighborhood schools, university campuses, libraries, and a number of other neighborhood-based locations throughout the city. There will be no issue finding suitable space to meet the needs of the DART.

C. DART working space with access to a copier, internet access and, if possible, a scanner.

Between City Hall and the Municipal Building just a few blocks away, the City could accommodate a number of staff persons. The Office of Sustainability has three extra work stations that are typically reserved for summer interns. There also are a number of conference rooms that could be reserved for the DART. If additional space is needed, or amenities inadequate, the City would inquire about space availability at nearby universities including Brown, RISD, Johnson and Wales University, and Rhode Island College.

D. Commitment from the Mayor, City Manager, or other top appointed elected or appointed officials to participate in the two workshops.

The Mayor is a strong supporter of this effort. He has demonstrated his commitment not only by signing the Compact of Mayors, but by attending numerous sustainability events over the past two months, including an hour-and-a-half long meeting with U.S. EPA Administrator Gina McCarthy and local business leaders to discuss the Clean Power Plan, the kickoff training for the SustainPVD Ambassador program, and his own home energy assessment, which included the press to encourage residents to participate in the program. The Mayor would be accommodating in his schedule to attend a workshop, especially with advanced notice and some flexibility in scheduling. In addition, other department heads including the Director of Policy, Director of Planning, and Director of Economic Development among others, would be available to participate. The Director of Sustainability would be the City's primary lead on the workshops and would attend all events, assist with preparations, and conduct any relevant follow up.

5. Community and Educational Partners Describe partnerships and the level of support from the community, including:

[A. Area colleges, especially those with programs in architecture, urban design, landscape architecture, environmental studies or other relevant disciplines. Ideally, student volunteers, especially those with graphic skills, will volunteer to help the team. B. Local non-profits, service clubs, business organizations, institutions, and faith-based and civil society organizations. C. Public elected and appointed officials, public agencies, and neighborhood groups.]

One of the benefits of Providence's unique scale is that while the city is large enough to have a number of top tier universities and nonprofits, we are small enough to know each other well and are accustomed to collaboration. The City has worked closely with higher educational institutes including Brown University, Rhode Island School of Design (RISD), Rhode Island College, Providence College, and Johnson and Wales University on a number of community initiatives. The University of Rhode Island and Roger Williams University (RWU) have also worked with the City on a number of projects. For example,

the City is working with RISD on a two urban design projects, one that is a year-long design and build effort.

Universities have expressed particular interest in urban sustainability issues in recent years. The DART would build off much of this work including RISD's Landscape Architecture studio that created resilient landscape designs for the vacant waterfront I-195 parcels, Brown University's Climate Change and Environmental Justice Teaching, Research, and Learning (TRI) Lab that examined the impacts of climate change on local vulnerable populations, and the University of Rhode Island work on creating a more resilient Providence Port.

Another noteworthy project is the *RISD Shellfish Project: Testing Sculptural Forms for Coastal Habitat Restoration in an Urban Waterfront*. The goal of the project is "to develop and implement a coastal habitat restoration project at an urban waterfront in Rhode Island that will directly engage the public into research on the impact of climate change." After testing various prototypes and securing a location at Providence's India Point Park, the multidisciplinary project team, which includes a researchers and professors from URI, RISD, RWU, and the Nature Conservancy, is currently in the final stages of construction. The City has engaged with this project and is helping them achieve their goals, specifically around the public education and engagement piece.

Providence's nonprofits and community organizations serve as critical partners connecting the academic community to the local challenges and neighborhoods. From large organizations such as Save the Bay, Clean Water Action, and Groundwork Providence, to smaller organizations like Southside Community Land Trust or Blackstone Parks Conservancy, they are actively addressing climate change on the local level.

In recent years, a coalition of more than 30 of these local nonprofits and community organizations have come together to form the Green Infrastructure Coalition (GIC) of Rhode Island. Led by Clean Water Action and the Rhode Island Nursery and Landscape Association, the GIC has identified green infrastructure as a key strategy to addressing the impacts of climate change. Through the activity of its members, the GIC has installed several small scale green infrastructure projects throughout the City. The GIC will be a resource for the DART, both for its in-depth knowledge of the community, flooding issues, and success stories, and for its ability to organize and connect with the community.

The Trust For Public Land (TPL) is also supporting climate and green infrastructure work in Providence. TPL, in partnership with the City of Providence, the Rhode Island Coastal Resources Management Council, the GIC, Clean Water Action, and the University of Rhode Island Coastal Resources Center/Rhode Island Sea Grant College Program, proposes to implement TPL's Climate-Smart Cities partnership. Together they will develop a Geographic Information Systems (GIS) decision support tool, conduct trainings and outreach, and develop regionally significant green infrastructure pilot projects. The goal is to increase awareness throughout the region about resiliency and climate-related issues, as well as enable decision-makers to incorporate and utilize science-based information. Climate-Smart Cities will be able to incorporate the results of The DART's work into public education and outreach and into the decision support tool.

6. Communication and Media Outreach Plan Describe how you will reach out to media and the community to generate media coverage and invite the widest range of stakeholders to the two evening public workshops and afternoon concurrent stakeholder focus groups.

Upon receiving the technical assistance and finalizing the scope of work, the Mayor's Office of Communications would work with the DART to issue a press release announcing the DART's work in Providence, and reiterating the Mayor's commitment to planning and preparing for the impacts of climate change. We will also meet with key members of the press leading up to the DART to fully brief them on the resiliency work going on throughout the city. These meetings would include various community partners to dive deep into the work and provide various perspectives. This communication and outreach plan will have state-wide reach given the political and economic significance of Providence in Rhode Island.

7. DART Project Timeline Explain how the RFP timeline (on first page) works for you. Provide the context of larger timelines (e.g, a timeline for a relevant planning process) that are affected by this project. NEMSN will work with communities to schedule DART visits, but funding and team member requirements will limit the flexibility in the scheduling.

The City's sustainability plan is being updated beginning in September 2015 for a spring 2016 release. A December or January DART visit aligns perfectly with this process. It will give ample time to convene partners prior to the visit, and incorporate results into the updated sustainability plan.

8. Supplemental Documents

A. Relevant planning documents (e.g., zoning or plan excerpts)

Providence Tomorrow <https://www.providenceri.com/planning/comprehensive-plan>

Sustainable Providence <http://providenceri.com/sustainability/about-the-plan>

Multi-Hazard Mitigation Plan 2013 <https://www.providenceri.com/PEMA/pema-mitigation>

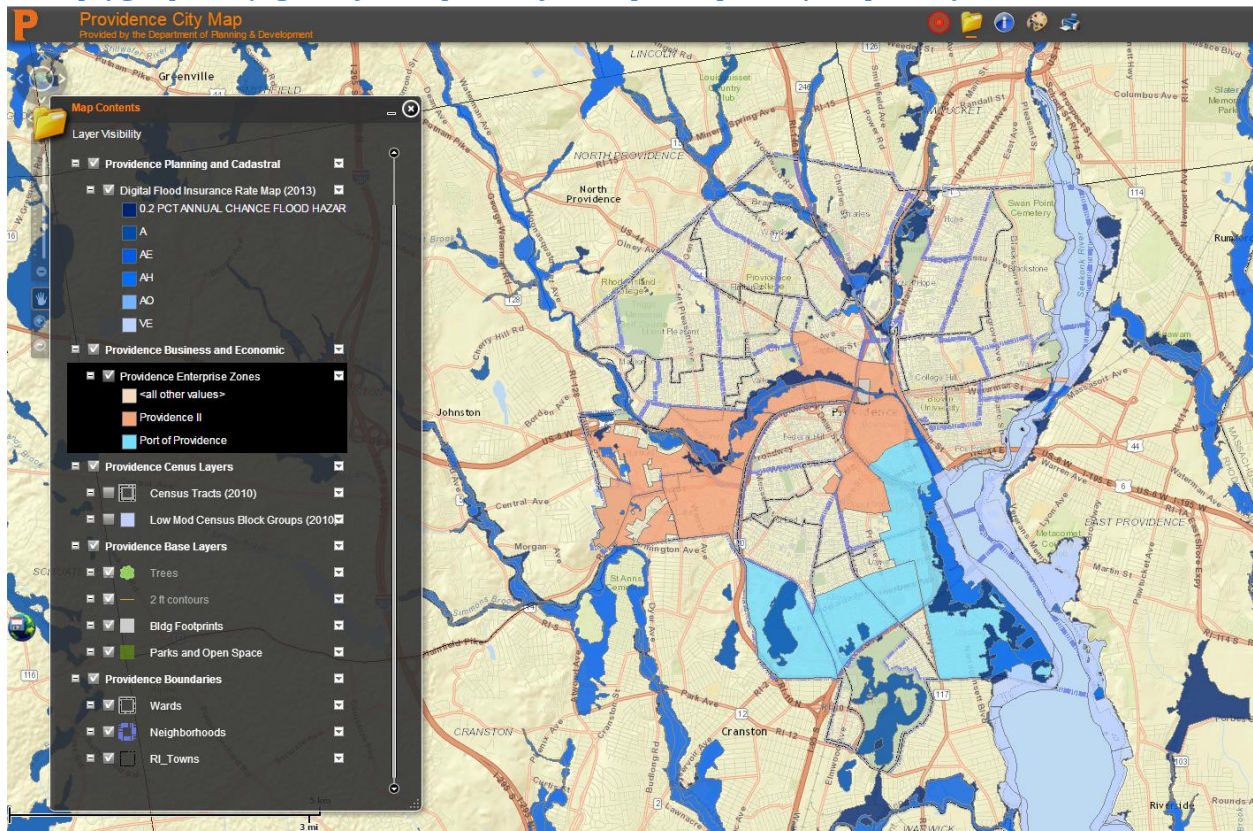
Providence's Urban Forest: Structure, Effects, and Values i-Tree Eco System Analysis, Feb. 2014
<https://www.providenceri.com/efile/5424>

State of Providence's Urban Forest (2008)

https://www.providenceri.com/sites/default/files/file/Parks_and_Recreation/Providence_Urban_Forest_as_of_2008.pdf

Building Resilience to the Public Health Impacts of Climate Change: A review of existing strategies and recommendations for the City of Providence <http://www.astho.org/Programs/Environmental-Health/Natural-Environment/Climate-Change/Climate-Change-Grantees/Materials/Rhode-Island-Public-Health-Institute--A-Review-of-Existing-Strategies-and-Recommendations-for-the-City-of-Providence/>

B. Maps/graphics (e.g., useful maps, study area plans, photos/air photos)



This map was generated from <https://gis.providenceri.com/city-map/>. Please follow link for more maps and data.

C. Useful information on the community (e.g., newspaper articles, tourism materials, economic development materials)

I-195 Redevelopment District Commission <http://www.195district.com/>





(Photo Credit: I-195 Redevelopment District Commission)

Providence Warwick Convention & Visitor's Bureau <http://www.goprovidence.com/>

Brown University Climate Change and Environmental Justice Lab
<http://www.brown.edu/academics/college/special-programs/public-service/tri-lab-brown-teaching-research-and-impact/climate-change-and-environmental-justice-lab>

RISD Shellfish Project <https://risdshellfishproject.wordpress.com/>



(Photo Credit: RISD)

RI Green Infrastructure Coalition <http://www.greeninfrastructureri.org/>

Trust For Public Land Climate-Smart Cities <https://www.tpl.org/services/climate-smart-cities>

“Students from Landscape Architecture Class Present Analysis of Port of Providence at Stakeholder Workshop” <http://web.uri.edu/maf/students-from-landscape-architecture-class-present-analysis-of-port-of-providence-at-stakeholder-workshop/>



(Photo credit: URI)

Providence Art, Culture, and Tourism <https://providenceri.com/ArtCultureTourism>

Providence Economic Development <https://www.providenceri.com/economic-development>

D. Anything you need to tell your story and describe issues and needs.